

EXHIBIT D

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

HEADWATER RESEARCH LLC,
Patent Owner.

IPR2023-01253
Patent 9,143,976

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Ex.	Description
2001	IPR Petition in <i>Samsung Elec. Co., Ltd. v. Headwater Research LLC</i> , IPR2023-01336, Paper 2 (PTAB Aug. 25, 2023).
2002	International Publication No. WO 2006/012610 to Rao et al. ("Rao-2")
2003	Redline of the text of Rao (Ex. 1007) and Rao-2 (Ex. 2002)
2004	U.S. Patent No. 8,825,109 to Montemurro et al. ("Montemurro Patent")
2005	Redline of the text of Montemurro (Ex. 1009) and the Montemurro Patent (Ex. 2004)
2006	U.S. Patent Application Publication No. 2008/0034418 to Venkatraman et al. ("Venkatraman")
2007	U.S. Patent Application Publication No. 2006/0136882 to Noonan et al. ("Noonan")
2008	Your Cell Phone Company's Dirty Little Secret (Feb. 10, 2010) (<i>available</i> online at https://money.cnn.com/2010/02/10/technology/cell_phone_bill/index.htm)

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I. INTRODUCTION

The Board should deny institution of *inter partes* review (“IPR”) of U.S. Patent No. 9,143,976 (“’976 Patent”). The Petition asserts that the combination of Rao and Oestvall renders obvious claim 1, the only independent claim challenged in this IPR. But Rao-Oestvall fails to meet claim 1 for three independent reasons:

1. Rao-Oestvall does not apply a first differential traffic control policy to *disallow* Internet service activity by the first application, as required by claim [1.7].
2. Rao-Oestvall does not send indications to the first application regarding network access conditions based on the applied first differential traffic policy, as required by claim [1.8].
3. Rao-Oestvall does not send indications regarding the availability or unavailability of Internet data service that is *available via the WWAN modem*, as required by claim [1.8].

For any of these reasons, Petitioner fails to prove that claim 1 is unpatentable, and institution should be denied.

Moreover, the Board should exercise its discretion and deny institution under 35 U.S.C. § 325(d) because the USPTO has already considered the same or substantially the same prior art as that presented in the Petition, and the Petition has failed to show that the Examiner materially erred during prosecution.

Ground 1A, the only ground challenging the sole independent claim of the ’976 Patent, relies on only the Rao and Oestvall references. As the Petition admits, a family member with nearly identical disclosures as Rao was before the Examiner

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during original prosecution. And the disclosures from Oestvall on which the Petition relies are substantially the same as disclosures from Rao or as disclosures from references that the Examiner considered to be “closest prior art” during prosecution.

And the Petition’s reliance on two secondary references for certain aspects of the dependent claims does not justify institution of review. The only two other grounds in the Petition (Grounds 1B/1C) both rely on the Rao-Oestvall combination to meet the elements of the sole independent claim, and thus are cumulative for the same reasons. And in any event, the disclosure of one of the secondary references (Montemurro) was also before the Examiner during prosecution.

II. THE '976 PATENT

A. Overview

The '976 Patent is generally directed to (i) using a differential traffic control policy to disallow Internet service activity from a first end-user application when the application is classified as not interacting with the user in the device display foreground, and (ii) using an application program interface (API) to indicate to the first end-user application certain network access conditions based on the differential traffic control policy. Ex. 1001 at 105:50-106:27 (claim 1). As reflected in the sole independent claim (claim 1), the invention uses the API to indicate to the first-end user application network access conditions including a *first* network access condition indicating the unavailability of Internet data service through the WWAN modem to

the first end-user application and a *second* network access condition indicating the availability of Internet data service through the WWAN. *Id.*

As explained by the '976 Patent, this solution allows the system to prevent specific applications from accessing Internet data services through the WWAN modem (and thus prevent the application from consuming network resources) while running in the background:

Advantageously, the differential network access control engine can restrict network access of a particular service usage activity when a condition is satisfied, such as when the service usage activity is a background activity.

...

In an illustrative example, the device 2700 blocks chatter for an application running in the background that is attempting to report device or user behavior. The application traffic prioritization engine 2710 determines that the chatter has *zero priority, such that the network service consuming application 2702 is prevented from consuming any resources*. The user can be sent a notification by the application traffic override engine 2718 that *their control policy prohibits the application from consuming network resources*, but that the user can opt to deviate from the control policy if they are willing to pay for the consumed resources. If the user is willing to pay for the resources, traffic can be sent at a certain rate from the application traffic cache 2716 through the

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network interface 2720, or perhaps sent without using the application traffic cache 2716.

Id. at 102:12-37.¹ Accordingly, the claimed invention allows the system to not merely deprioritize network traffic sent by a background application, but to *disallow* and prevent all access of that background application to the WWAN modem.

This is important in the context of WWAN modems, because as the '976 Patent recognizes, “network resources” over WWAN connections typically incur a cost that the user may be charged for. *See generally* Ex. 2008 at 1 (February 10, 2010 article describing “two data plans” offered near the priority date of the '976 Patent: “\$10 for up to 25 megabytes or \$20 for up to 75 megabytes”). Thus, the '976 Patent allows a network traffic control policy to prevent particular background applications from consuming *any* of these valuable network resources unless, for example, “the user is willing to pay for the resources.” Ex. 2001 at 102:23-37.

Further, the '976 Patent's solution also allows the system to use an API to tell each application when its Internet service activities are being disallowed or allowed. *See, e.g., id.* at 91:41-49 (“As yet another example, before a connection is allowed to be opened (e.g., before a socket is opened, transmission, or a flow/stream is initiated, it is blocked and *a message is sent back to the application* [by an API] . . .

¹ All emphases added unless otherwise noted.

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to indicate that the network access attempt was not allowed/blocked, that the network is not available, and/or to try again later for the requested network access).”). For example, the ’976 Patent teaches embodiments in which:

implementing traffic control for network capacity controlled services [] is provided using various techniques in which the network service usage activity is *aware of network capacity control (e.g., does support an API or other interface for implementing network capacity control)*. In some embodiments, the application/messaging layer (e.g., a network API as described herein) is used to communicate with a network service activity to provide associated network capacity controlled service classifications and/or priorities, network busy state information or network availability of one or more networks or alternative networks, a network access request and response, and/or other criteria/measures as similarly described herein.

Id. at 92:36-49; *see also id.* at 92:1-26.

B. Challenged Claims

The challenged claims of the ’976 Patent are independent claim 1 and dependent claims 2-29. *See* Pet. at 1. Independent claim 1 recites:

Identifier	Claim Language
[1.1]	A wireless end-user device, comprising:
[1.2]	a wireless wide area network (WWAN) modem to communicate data for Internet service activities between the

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		device and at least one WWAN, when configured for and connected to the WWAN;
	[1.3]	a wireless local area network (WLAN) modem to communicate data for Internet service activities between the device and at least one WLAN, when configured for and connected to the WLAN;
	[1.4]	a device display;
	[1.5]	one or more processors configured to
	[1.6]	classify, for a first end-user application capable of interacting in the device display foreground with a user and capable of at least some Internet service activity when not interacting in the device display foreground with the user, whether or not the first end-user application, when running, is interacting in the device display foreground with the user,
	[1.7]	for a time period when data for Internet service activities is communicated through a WWAN modem connection to the at least one WWAN, apply a first differential traffic control policy to Internet service activity on behalf of the first end-user application, such that Internet service activity on behalf of the first end-user application is disallowed when the one or more processors classify the first end-user application as not interacting in the device display foreground with the user
[1.8]	[1.8(a)]	indicate to the first end-user application, via an application program interface (API), one or more network access conditions based on the applied first differential traffic control policy, including
	[1.8(b)]	a first network access condition that indicates the unavailability to the first end-user application, when the first end-user application is classified as not interacting in the device display foreground with the user, of Internet data service that is available via the WWAN modem, and

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	[1.8(c)]	a second network access condition that indicates the availability to the first end-user application, when the first end-user application is classified as interacting in the device display foreground with the user, of Internet data service that is available via the WWAN modem.
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C. Prosecution History

Although the Petition states that “[n]one of the prior art references advanced in this Petition was previously presented to the Office” (Pet. at 74), the Examiner considered a family member (Ex. 2002) of the Rao reference relied on in the Petition for the challenge to the sole independent claim, and the issued version (Ex. 2004) of the Montemurro reference relied on in the Petition for challenges to certain dependent claims. *See* Pet. at 74 (admitting the Rao family member was before the Examiner); *see also* Ex. 1001 at 6, 9 (listing the Rao family member and as-issued Montemurro in the References Cited section); Ex. 1002 at 16, 21 (listing the Rao family member and as-issued Montemurro on an IDS that the Examiner signed).

The family member or issued patent each has only negligible differences when compared with the corresponding reference relied upon by the Petition, with such differences having no consequence to the invalidity theories presented by the Petition. Ex. 2003 (comparison of Rao to the Rao family member before the Examiner); Ex. 2005 (comparison of Montemurro to the as-issued Montemurro).

In addition to the Rao family member and as-issued Montemurro patent, the

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Examiner considered other prior art, including three references that he found to be the “closest prior art”: U.S. Patent Application Publication No. 2008/0080457 (“Cole”), U.S. Patent Application No. 2008/0034418 (“Venkatraman,” Ex. 2006), and U.S. Patent Application No. 2006/0136882 (“Noonan,” Ex. 2007). Ex. 1002 at 346-47. In his Notice of Allowance, the Examiner found that none of these references “reasonably suggest[s], or render[s] obvious” any of claim elements [1.6], [1.8(a)], [1.8(b)], and [1.8(c)]. *Id.*

III. LEVEL OF ORDINARY SKILL IN THE ART

The Petition proposes that a POSITA in the field of the '976 Patent “would have had (1) at least a bachelor’s degree in computer science, computer engineering, electrical engineering, or a related field, and (2) at least two years of industry experience in services and application implementation in communication networks. Additional graduate education could substitute for professional experience, and vice versa.” Ex. 1003 ¶¶16-17; *see* Pet. at 11 n.3 (citing Ex. 1003 ¶16). For purposes of this preliminary response, Patent Owner does not challenge that definition.

IV. CLAIM CONSTRUCTION

The Petition states that “Petitioner submits that no formal claim constructions are necessary.” Pet. at 2. For purposes of this preliminary response only, Patent Owner agrees that no formal claim construction is necessary.

V. OVERVIEW OF PRIOR ART²

A. Rao (Ex. 1005)

Rao is directed to “remote access architecture” for a system that provides “peer-to-peer communications and remote access connectivity.” Ex. 1005 at Abstract. It addresses inefficient use of network resources when network communications are “processed in the order generated by the activity of a user and applications of the client.” *Id.* ¶[0002]. Rao describes a prioritization scheme that “provide[s] application-aware, client-specific prioritization of packet traffic.” *Id.* ¶[0003].

Rao further describes “client centric prioritization of application network communications on a client based on the type and/or priority of an application.” *Id.* ¶[0179], Fig. 5A. To perform this prioritization, Rao “appl[ies] a policy to determine a condition of the client 105, or endpoint, at the time of transmission of the packet.” *Id.* ¶[0109]. According to Rao, policies 520 can be specified by “name of the application 338a-338n,” “type of application 338a-338n,” or “type of one or more protocols used by the applications 338a-338n.” *Id.* ¶[0182]. Further, policies 520 are used to “determine which packets to queue and/or discard” and “apply a priority to

² The Petition relies on secondary reference Montemurro only to meet certain limitations of dependent claims for Ground 1B. Because Montemurro is irrelevant to the arguments in this Preliminary Response, Patent Owner does not address it.

network packets of applications 338a-338n.” *Id.* ¶[0207].

B. Oestvall (Ex. 1006)

Oestvall is a short patent application publication with a written disclosure of two pages. Oestvall is directed to methods of conserving battery in computing devices, including personal computers and laptops. Ex. 1006 ¶[0002]. As Petitioner acknowledges, Oestvall is “focus[ed] on battery conversation.” Pet. at 12. Oestvall does not contain any discussion of wireless networks or wireless network types other than noting, in the background, that “Battery conservation in battery operated computing devices is very important[.]” Ex. 1006 ¶[0004]. According to Oestvall:

With the present invention, untrusted third party applications (such as downloaded applications like games) are prevented from running in the background and are suspended. Trusted applications may still be allowed to run in the background, or they may be actively prevented in the same way as non-trusted applications, or they may be requested (but not prevented) to stop running if in background. Trust will conventionally be established for a given application using a signature in the application installation file[.]

Id. ¶[0015].

C. Araujo (Ex. 1011)

The Petition purports to rely on Araujo as an alternative “Rao-Oestvall-Araujo” combination for claim 1 under Ground 1A. Pet. at 1 n.1. But the Petition presents no theory a POSITA would be motivated to combine Araujo with Rao-

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Oestvall for claim 1. Instead, the Petition's only theory for motivation to combine is for dependent claims 12, 15, 21, and 22 under Ground 1C. *See* Pet. at 65-68.

As to that theory, the Petition asserts that a POSITA would have modified Rao-Oestvall by "interposing" Araujo's "request deflector component" between applications and Rao's network driver. *Id.* at 67. The Petition further asserts that Araujo's "request deflector component" would have been arranged to process network packets sent by an application and configured to "selectively allow or block the network packets from proceeding to the network driver." *Id.* at 67-68.

VI. THE BOARD SHOULD DENY INSTITUTION ON THE MERITS

The Petition fails to show that Rao in view of Oestvall (Rao-Oestvall) renders obvious claim limitations [1.7] and [1.8] of the '976 Patent. Because of either limitation, Petitioner cannot prove that claim 1 is unpatentable. All challenged claims depend from claim 1. Thus, institution should be denied.

A. Rao-Oestvall Fails to Render Obvious Claim [1.7]

Identifier	Claim Language
[1.7]	for a time period when data for Internet service activities is communicated through a WWAN modem connection to the at least one WWAN, apply a first differential traffic control policy to Internet service activity on behalf of the first end-user application, such that Internet service activity on behalf of the first end-user application is disallowed when the one or more processors classify the first end-user application as not interacting in the device display foreground with the user

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Claim limitation [1.7] states that when data for Internet service activities is communicated through a WWAN, the system applies a first differential traffic control policy to disallow Internet service activity by the first application when the application is classified as not in the foreground interacting with the user. In critical part, the limitation requires *applying* a first *differential traffic control policy* to ***disallow*** Internet service activity by the first application.

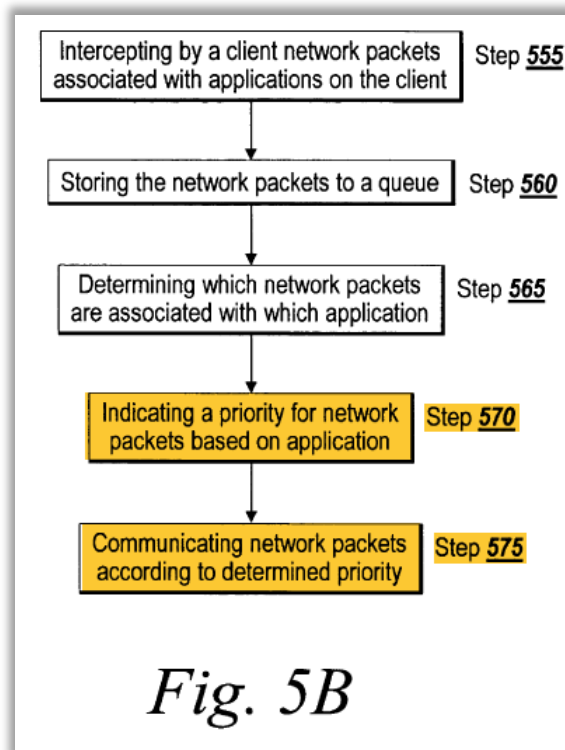
The Petition presents two theories for how Rao-Oestvall “disallows” Internet service activity: (1) Rao’s technique of prioritizing network packets for transmission; and (2) Oestvall’s technique of preventing untrusted applications from running. Pet. at 24-25. Both fail and cannot meet claim [1.7].

1. Rao’s scheme of *prioritizing* network packets for transmission is *not disallowing* Internet service activity on behalf of first application, as claim [1.7] requires.

The Petition first contends that Rao’s system of priority-based queueing would “result in” certain network packets from an application being “*temporarily* disallowed.” *Id.* at 24 (arguing that “network packets of that application would be stored in queue behind other application(s) with a higher prioritization, resulting in *temporary disallowance* of network packet transmission”); *id.* (arguing that Rao-Oestvall “would have resulted in . . . network packets being *presently* ‘disallowed’ *until and so long* as the device is handling higher priority packets”).

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But there is no evidence that Rao's alleged functionality of queueing and prioritizing network packets constitutes *disallowing* Internet service activity on behalf of the first application, as claim [1.7] requires. To the contrary, Rao's priority techniques *allow* packets from the first application to be transmitted in all cases; Rao merely *de-prioritizes* those packets behind one or more higher priority packets (if there happen to be any). Where there are no other higher priority packets, the packets from the first application are transmitted immediately. Indeed, Rao contemplates that *all* packets assigned a priority will be transmitted. This is confirmed, for example, by Rao's Fig. 5B, which shows that after network packets are assigned a priority based on application (in step 570), those packets are then communicated over the network (in step 575):



Ex. 1005 at Fig. 5B (annotated).

Rao's claims also make clear that even when a packet may have lower priority than other packets, the lower-priority packet will nevertheless be communicated over the network. *See id.* at claim 4 (only preventing a lower-priority packet from being communicated “*ahead of*” higher priority packets); *id.* at claim 5 (discussing “holding” a deprioritized network packet, and then “releasing” that hold “upon communication” of certain higher priority packets). This is further confirmed because Rao teaches assignment of priority involves at least *some* (non-zero) level of priority. *See id.* ¶[0180] (referring to “levels of priority, such as high, medium, low, or numerically such as priority 1 . . . 10”) (ellipses in original).

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Thus, at most, and only under certain circumstances, Rao's system temporarily *delays* certain network packets associated with the first application. But this does not meet the plain meaning of claim [1.7], which requires *disallowing* Internet service activity on behalf of the first application ("apply a first differential traffic control policy . . . such that Internet service activity on behalf of the first end-user application *is disallowed*"). And any argument that temporarily delaying packets for priority queuing is equivalent to disallowing Internet service activity is inconsistent with the '976 Patent. For example, the specification distinguishes "block[ing]" access from less drastic remedies that apply to individual network packets, such as delaying traffic by putting that traffic into lower-priority queues. Ex. 1001 at 13:21-25, 55:58-62, 92:9-19. Further, the '976 Patent describes "allow/block" as a separate operation from "queue" or "defer" and clarifies that blocking access can apply to the network connection rather than at the level of individual packets. *Id.* at 91:41-49, 92:9-19, 102:23-37 (traffic control includes "block[ing]" the application "such that the network service consuming application is prevented from consuming any [network] resources").

Petitioner attempts to circumvent this deficiency by asserting that Rao's priority-queuing technique delays certain packets and thus results in "***temporary*** disallowance." Pet. at 24 (arguing that Rao would queue certain packets after other packets, "resulting in *temporary disallowance* of network packet transmission); *id.*

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(arguing that Rao-Oestvall “would have resulted in . . . network packets being *presently ‘disallowed’*). This fails for at least two reasons.

First, under Petitioner’s linguistic argument, any process that “results in” slightly delayed transmission could be characterized as “temporary disallowance” or “present disallowance.” This is unsupported. Any unrelated CPU process, for example, could “result in” delaying transmission. But no one would call that disallowing transmission. Thus, what matters is what the process *is doing*. And there is no evidence that queueing or prioritizing (which is what the Petition relies on for the alleged disallowing) meets the plain meaning of *disallowing* Internet service activity.

This is especially true since “queueing” and “disallowing” are technical terms of art and recognized as different techniques for network traffic control. *See* Ex. 1001 at 13:21-25, 55:58-62, 91:41-49, 92:9-19. And even in ordinary English, the terms have different meanings. For example, any family that visits Disneyland would understand that it uses a queueing system for rides. But no one would say Disney uses a “disallowance” system. Nor would anyone say, after getting in line, that they were being “disallowed” from going on the ride.

Second, the Petition’s linguistic argument collapses in view of the remaining claim language. The Petition asserts that Rao-Oestvall would have resulted in network packets being “‘disallowed’ until and *so long as the device instead focused*

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on handling ‘one or more network packets ahead . . . in the queue.’” Pet. at 24-25.

In effect, the Petition rewrites the claim language to recite that “Internet service activity on behalf of the first end user application is disallowed when the device instead focuses on handling other network packets in the queue.”

But that is not what the claim states. Rather, the claim requires that “Internet service activity on behalf of the first end user application is disallowed *when the one or more processors classify the first end-user application as not interacting in the device display foreground* with the user.” Thus, the Petition’s theory is that Rao-Oestvall disallows activity when one or more other packets are being transmitted, whereas the claim requires disallowance of activity when the first application is classified as not in the foreground interacting with the user.

Thus, Petitioner is not even talking about the right thing. And there is no argument or evidence that Rao performs “disallowance” *until* the application is moved to the foreground and interacting with the user, as required by claim [1.7].

A practical examination of the difference between a short-term temporary delay to process other traffic and what claim [1.7] requires illustrates the fallacy of the Petition’s argument. In practice, an application could be in the background for an indefinite period (weeks or months), in which an implementation of claim [1.7] would result in Internet service activity on behalf of the first end-user application

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disallowed indefinitely. This is completely different from just the very short period required to send the traffic of a different application under the Petition's theory.

2. Oestvall's technique of "preventing untrusted applications from running" is *not* applying a differential traffic control policy to Internet service activity by the first application.

The Petition also contends that implementing Oestvall's technique of preventing an untrusted application from running "would have resulted in" Internet service activity from the application being *disallowed* "based on its classification as an untrusted application." *Id.* at 25. That argument likewise fails. Notably, the Petition does not allege that Oestvall's prevention of untrusted background applications from running is the result of a "first differential traffic control policy," much less provide any explanation as to why such a policy would be considered a "differential traffic control policy" under any interpretation *See generally* Pet. at 21-25 (asserting only that "Rao-Oestvall would have applied policies," but providing no explanation for why preventing an untrusted background application from running is a "differential traffic control policy"). The Petition's failure to address whether preventing background untrusted applications from running is consistent with Petitioner's arguments in IPR2023-01336, where in a combination with Rao-Oestvall, only Rao was alleged to disclose a "differential traffic control policy." IPR

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Petition in *Samsung Elec. Co., Ltd. v. Headwater Research LLC*, IPR2023-01336, Paper 2 (“-01336 Petition,” Ex. 2001) at 25-26 (PTAB Aug. 25, 2023).

Indeed, Oestvall’s technique of “preventing an untrusted application that is in the background from running” (Ex. 1006 ¶[0016]) is in no way a differential Internet traffic control policy. Instead, it is a way of shutting off “untrusted” applications, which Oestvall describes as applications that are un-validated or from certain kinds of third-party programmers. *Id.* at [0014] (“applications which are from certain kinds of third party programmers or are not validated as proper implementations—*i.e.* ‘**untrusted’ applications**”). Oestvall prevents untrusted applications from running in their entirety, so that such applications are incapable of requesting access to any services or resources whatsoever. *See id.* at Abstract (discussing “a control signal . . . that in effect prevents the untrusted application from running, e.g., being given any services or consuming any resources”); *id.* ¶[0021] (“With the present invention, when an untrusted application is running . . . the untrusted application is placed into the background *and is also actively prevented from running.*”); ¶[0014] (explaining that untrusted background applications “*need to be actively prevented from running*”).

Thus, even assuming Oestvall’s technique of shutting off untrusted applications could be considered disallowing Internet service activity (it is not), that would not save the Petition’s theory. This is because Oestvall’s technique is *not* (nor

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alleged to be) “apply[ing] a first differential traffic control policy to Internet service activity on behalf of the first end-user application,” as claim [1.7] requires. In fact, Oestvall’s prevention of untrusted background applications from running does not meet Petition’s implicit construction of “differential traffic control policy” in the - 01336 Petition, because it does not “offer different controls for different network traffic.” *See* Ex. 2001 at 25-26 (“Because Rao’s policies are designed to prioritize, queue, and discard network packets, they offer different controls for different network traffic (network packets).”). Instead, by preventing background untrusted applications from running, **no** network traffic is generated or requested by those applications.

Nor is there any argument or evidence for how the alleged combination of Rao and Oestvall would meet this requirement. For example, the Petition never explains how Rao’s system of prioritizing packets for transmission would be combined with Oestvall’s completely different technique of shutting off untrusted applications. Nor does the Petition explain why or how its purported amalgam of disparate functionality would constitute “applying a differential traffic control policy to Internet service activity.”

3. For claim [1.7], Petitioner’s expert declaration repeats the Petition verbatim and is entitled to no weight.

Although the Petition cites the declaration of its expert Dr. Butler for claim [1.7], the declaration fails to provide any additional argument, analysis, or evidence. It merely repeats the same six paragraphs as the Petition, nearly verbatim. *Compare* Pet. at 21-25, *with* Ex. 1003 ¶¶ 8-83. Thus, the cited opinions for claim [1.7] are deficient and fail for the same reasons. Dr. Butler’s opinions are also unsupported and conclusory, and entitled to no weight. *See Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (PTAB Aug 24, 2022) (precedential) (“*Xerox*”) (denying institution and giving “little weight” to “cited declaration testimony [that] is conclusory and unsupported” and “adds little to the conclusory assertion for which it is offered to support”); *Smartmatic USA Corp. v. Election Sys. & Software*, IPR2019-00527, Paper 32 at 34 (PTAB Aug. 5, 2020) (“*Smartmatic*”) (giving no weight to an expert declaration that “merely parrots the language in the Petition”).

B. Rao-Oestvall Fails to Render Obvious Claim [1.8]

Identifier		Claim Language
[1.8]	[1.8(a)]	indicate to the first end-user application, via an application program interface (API), one or more network access conditions based on the applied first differential traffic control policy, including
	[1.8(b)]	a first network access condition that indicates the unavailability to the first end-user application, when the first end-user application is classified as not interacting in the

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		device display foreground with the user, of Internet data service that is available via the WWAN modem, and
	[1.8(c)]	a second network access condition that indicates the availability to the first end-user application, when the first end-user application is classified as interacting in the device display foreground with the user, of Internet data service that is available via the WWAN modem.

Claim limitation [1.8] requires the system to indicate to the first application, via an API, network access conditions based on the applied first differential traffic policy (claim [1.8(a)]). The limitation further requires the conditions to include:

- a *first* network access condition that indicates the *unavailability* of “Internet data service that is available via the WWAN modem” (claim [1.8(b)]); and
- a *second* network access condition that indicates the *availability* of “Internet data service that is available via the WWAN modem” (claim [1.8(c)]).

The Petition fails to show that Rao-Oestvall renders obvious claim [1.8] for two overarching reasons. *First*, there is no evidence, in either Rao or Oestvall, that the system sends indications to applications regarding whether Internet data service is available to the application. On this point, the Petition mischaracterizes Oestvall, which in fact teaches away from claim [1.8] by warning against sending requests to “untrusted” applications. *Second*, even assuming the system sends indications to user applications, the Petition would still fail. This is because any indications are *not* regarding the unavailability or availability of “Internet data service *that is available*

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via the WWAN modem.” There is no evidence that Rao-Oestvall is concerned about WWAN connections in particular and no evidence the system sends “indications” regarding whether Internet service *via the WWAN* is available. The Petition’s theory is unsupported and reads the WWAN limitations out of the claim.

1. Rao-Oestvall does not send indications to the first application regarding network access conditions based on the applied first differential traffic policy.

In Rao and Oestvall, as well as the background references the Petition cites, there is no “indication” to the first application regarding whether Internet data service is available to the application, as required by claim [1.8].

a. Rao

In Rao, there is no teaching or suggestion that applications 338a–38n are ever informed of any network condition. Rather, the “bi-directional arrow” that the Petition points to (Pet. at 26) is clearly taught as a *data communication path* and is never disclosed as informing the application of any network condition. *See* Ex. 1005 ¶[0179] (applications 338a-338n “access the network 104 via the agent 326” and provide “one or more real-time data communications”). It is well-known that applications both send and receive data—hence the bi-directional arrow.

Lacking any other support from Rao, the Petition quotes the following sentence about Rao’s packet capture mechanism: “The packet capture mechanism 365 may use any hooking application programming interface (API) to intercept,

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hook, or otherwise obtain inbound and/or outbound packets of the client 105, such as the network traffic associated with application 338.” Pet. at 26-27 (quoting Ex. 1005 ¶[110]). But the described methods—“intercepting,” “hooking,” and “obtaining inbound and/or outbound packets”—are all about processing network packets *outside* the applications. They are different from, and do not remotely suggest, sending indications to applications regarding network access conditions.

Nor does the Petition provide any evidence or explanation for why a POSITA would find it obvious to implement Rao’s system to send indications to applications regarding network access conditions based on the applied differential traffic policy. This is because it would not be obvious, particularly in view of Rao’s teachings that its interception and control of network packets “is performed *transparently to an application*.” Ex. 1005 ¶[0052]. Indeed, Rao suggests that packets from applications are intercepted by a “packet capture mechanism” such that applications are not even aware that packets are being intercepted. *See id.* ¶[0201] (“[T]he illustrative method may communicate any queued network packets and continue with the session transparently as if the network disruption did not occur.”).

b. Oestvall

As to Oestvall, untrusted applications are prevented from running, so there would be no reason to send them “indications” regarding whether Internet data service is available to the application, as required by claim [1.8]. Oestvall expressly

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teaches that untrusted applications are denied from “being given *any services* or consuming *any resources*.” Ex. 1006 ¶[0023]. Thus, the application has no access to the CPU or memory, and no processing or storage capability.

In these circumstances, it would be nonsensical for the system to send a notification to an application *it just turned off* saying “BTW, network service is unavailable.” Among other reasons, the application would have *no* ability to receive, read, or process the notification—and the system knows this. Moreover, any such notification would always be wrong. The application could only read it *after* services and resources have been restored. Thus, the application would be notified that “network service is unavailable” only when network service is available.

These are just some of the fatal flaws with Petitioner’s argument. Yet Oestvall’s technique of preventing untrusted applications from running is the Petition’s *entire theory* for claim [1.8(b)]. Pet. at 30 (asserting that “Rao-Oestvall would have applied a policy that in effect prevents application from obtaining access to device resources (including network resources).” Claim [1.8(b)] requires the system to send an “indication” to a first application that Internet data service is not available to the application. And, as discussed above, it is impossible to reconcile this requirement with Oestvall’s functionality that Petitioner relies on. Petitioner’s theory for claim [1.8(b)] is fundamentally defective and should be rejected for this

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reason alone. The Petition cannot meet its burden to show claim [1.8(b)] and therefore cannot show that claim 1 is unpatentable.

As for claim [1.8(a)], the Petition argues that Oestvall “contemplates embodiments” in which applications “may be requested (but not prevented) to stop running.” Pet. at 27 (citing Ex. 1006 ¶¶[0015], [0023]).³ But the Petition mischaracterizes Oestvall, and the paragraphs it cites contradict its argument.

In both paragraphs, Oestvall makes clear that in “the present invention,” *untrusted* applications are always prevented from running. Ex. 1006 ¶[0015] (“With the present invention, untrusted third party applications . . . are prevented from running”); *id.* ¶[0023] (“for an untrusted application,” the system “can send a control signal to the scheduler 3 or interrupt handler that in effect prevents the untrusted application 4 from running”). In those paragraphs, Oestvall proposes that *trusted* applications in the background could be treated differently: trusted applications could be actively prevented from running like untrusted applications or they could be requested (but not prevented) to stop running. *Id.* ¶¶[0015], [0023].

³ Notably, this reliance on Oestvall’s alternate embodiments is only for claim [1.8(a)]. For claim [1.8(b)], the Petition is crystal clear that its theory is limited to Oestvall’s technique of preventing untrusted applications “from being given any services or consuming any resources.” Pet. at 30.

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Thus, the Petition is now relying on statements in Oestvall that are expressly about *trusted* applications, whereas its theory for how network activity is “disallowed” (as required by claim [1.7]) is all about Oestvall’s handling of *untrusted* applications. Even as to trusted applications, Oestvall describes the two actions, (a) prevented from running or (b) requested to stop running, as mutually exclusive alternatives. *See id.* ¶[0015] (trusted applications may be “actively prevented” *or* “may be requested (**but not prevented**) to stop running”); *id.* ¶[0023] (same). But under the Petition’s theory for claim [1.7], the applications were already prevented from running (because that is how Oestvall allegedly “appl[ies] a first differential traffic control policy to Internet service activity”). Thus, there would be no reason (and Oestvall suggests none) to *also* send the application a request to stop running, as the Petition now contends.

Further, given Petitioner’s clear reliance on Oestvall’s disclosures regarding untrusted applications, Oestvall itself teaches away from claim [1.8(a)]. Oestvall recognizes that “[a]pplications might, in theory, be written so that they take notice of an event sent to them . . . causing them to automatically cease running.” *Id.* ¶[0014]. But it warns against sending such requests to untrusted applications because such applications are “more likely to contain a wrong implementation of normal background behavior.” *Id.* Thus, according to Oestvall, “merely relying on an application to voluntarily cease running when notified is ***an inadequate strategy*** for

untrusted applications.” *Id.* Instead, Oestvall warns, “they *need* to be *actively prevented* from running.” *Id.*

c. Araujo or Dive-Reclus

Next, the Petition asserts, in purely conclusory fashion, that a POSITA would have modified Rao-Oestvall to meet claim [1.8] “using one of several well-known techniques.” Pet. at 27-28. But there is no evidence or explanation for such a modification in view of Rao and Oestvall—especially since (1) Rao discusses intercepting packets “transparently” to (i.e., without notifying) an application, and (2) Oestvall *teaches away* from sending notifications to untrusted applications. Further, Petition does not even articulate what the alleged modification *is* or how it would allegedly meet claim [1.8].

As to Araujo⁴, the Petition asserts that the device can “block” a request for a power state change and then “notify the program that request will not be processed.”

⁴ The Petition’s buried-in-a-footnote attempt to preserve Rao-Oestvall-Araujo as a combination for Ground 1A (Pet. at 1 n.1) must be rejected. No such combination is ever articulated for claim 1; nor is any motivation to combine theory for claim 1 presented. Instead, the first and only time Petitioner mentions that combination is for dependent claim 12. And even to that combination, Petitioner only asserts that Araujo’s “request deflector component” would be used to intercept packets from applications before sending them to Rao’s network driver. But there is no evidence

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Pet. at 28. But any notifications in Araujo are about power management and sent in response to a power state change request. *See* Ex. 1011 at Abstract. Neither Rao nor Oestvall “blocks” any requests or sends notification in response to blocked requests. They instead prioritize packet transmission or prevent applications from running. Thus, there would be no reason to incorporate Araujo’s notifications into Rao or Oestvall, which are different systems and directed to different problems. Further, claim [1.8.(a)] requires sending network access conditions to applications based on applying a “first differential traffic control policy.” And there is no evidence that sending a notification in response to a power state change request is applying a differential traffic control policy as the claim requires.

As to Dive-Reclus, which the Petition asserts Oestvall incorporates by reference (Pet. at 28), Oestvall describes it as teaching “[a]n alternate approach to platform security on SymbianOS.” Ex. 1006 ¶[0020]. Oestvall is directed to classifying untrusted applications and denying them system resources during operation. *Id.* at [0023] (the system “can send a control signal to the scheduler 3 or interrupt handler that in effect prevents the untrusted application 4 from running”). Dive-Reclus is directed to a different approach that classifies untrusted applications

or argument that the combination would send indications to applications regarding network access conditions, as required by claim [1.8(a)].

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and restricts their access to system resources *upon installation*. Ex. 1026 at 4:3-5, 4:25-27 (“Each executable (e.g., program (EXEs) . . . contains the capabilities it has been granted at installation time.”). According to Dive-Reclus, “the present invention” can be thought of as “firewall protection” of key operating system resources from harmful access. *Id.* at 1:4–5, 4:22–24.

Dive-Reclus’s “firewall” security approach is inconsistent with Oestvall’s approach of monitoring and shutting off untrusted applications during operation. And the Petition does not allege why or how a POSITA would incorporate Dive-Reclus’s “alternate approach” into Oestvall or Rao-Oestvall. This is because none exist. Indeed, any disclosure of “using permissions to regulate API calls” in Dive-Reclus is for implementing the proposed firewall—not for prioritizing network traffic (as in Rao) or preventing applications from running (as in Oestvall).

In Rao and Oestvall, there is no similar need (or any need) to “use permissions to regulate API calls.” In fact, Dive-Reclus itself does not disclose that granting or blocking an API call “involves providing an indication to the application regarding the permission decision.” Pet. at 28. Instead, the Petition argues that this would be *obvious* based on Dive-Reclus’ disclosure of a “permission decision for an API call.” *Id.* But because Rao and Oestvall are not alleged to provide permission decisions for API calls, there is no reason why the alleged “obviousness” of indications in Dive-

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Reclus of permission decisions for API calls would be applicable to Rao and Oestvall.

Finally, the Petition gives a hypothetical “example” (*id.* at 29-30) of the use of Java sockets API to regulate network access. But the use of Java sockets API to regulate network access is inconsistent with how Rao and Oestvall teach regulating network access—i.e., prioritizing packets and preventing applications from running, respectively. The Petition never alleges that the techniques of Rao or Oestvall could be accomplished using Java sockets API for network control (as opposed to simply data communication). Nor does the Petition present there any evidence or argument for why a POSITA would be motivated to incorporate the use of Java sockets API for network control into Rao-Oestvall, why it would benefit the system, and how it would work.

2. Regardless, Rao-Oestvall cannot send indications regarding the availability or unavailability of “Internet data service *that is available via the WWAN modem.*”

Even if Rao-Oestvall could somehow send indications to applications to meet claim [1.8(a)] (it cannot), the Petition would still fail. This is because any “indications” sent by the system are *not* indications regarding the unavailability or availability of “Internet data service *that is available via the WWAN modem,*” as required by claim [1.8(b) & 1.8(c)].

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As an initial matter, there is no evidence (and the Petition does not assert) that the Rao-Oestvall system conditions the application policies based on whether the device is connected to a WWAN. This is apparent from the Petition's discussion of claim [1.7]. That limitation describes applying a first differential traffic control policy "for a time period when data for Internet service activities is communicated through a WWAN modem connection to the at least one WWAN."

The Petition's theory for claim [1.7] is that *knowing* the device is in WWAN mode does not matter. *See* Pet. at 22-23. It contends that Rao-Oestvall applies policies "in scenarios where device operation increases battery consumption" and that those scenarios may sometimes coincide with the device being connected to a WWAN. *Id.* at 22. The Petition also contends that claim [1.7] does not require applying policies "exclusively" in WWAN mode and can be met by a system that applies the same policies when the device is *not* connected to a WWAN. *Id.* at 23 (asserting that "the limitation is met" by "a mobile device configured to communicate over either a WWAN or WLAN").⁵

⁵ Notably, there is no evidence that a POSITA would be motivated to modify Rao-Oestvall to determine *when* the device is connected to a WWAN and then apply traffic control policies *only* during that time. The Petition asserts that the system applies policies because battery conservation is needed—not because of the WWAN state. *See* Pet. at 22. Indeed, "battery conservation" was the Petition's stated rationale

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But the Petition's treatment of claim [1.7] falls apart when it comes to claim [1.8(b) & 1.8(c)]. Those limitations require sending network access conditions "to the first application" that indicate the unavailability or availability of "Internet data service *that is available via the WWAN modem.*" And the Petition's proposed system, as discussed for claim [1.7], simply has no idea whether and when the device is even connected to a WWAN. Therefore, it does not—and cannot—send any "indication" about the unavailability or availability of WWAN Internet data service.

On this point, the Petition's theory is fatally flawed, and the Petition confirms this. To meet claim [1.8(b)] & [1.8(c)], the Petition relies on Oestvall's technique of preventing untrusted applications from running. And it contends that shutting off an application includes shutting off network resources, which would be "*pertinent to*" Internet data service available via the WWAN modem. *Id.* at 30-31. The Petition's assertion that Rao-Oestvall is allegedly "pertinent to" claim requirements is on its face deficient and underscores a total failure of proof.

The Petition does not allege that the claim requirements are met because it cannot. The Petition's theory is inconsistent with the plain meaning of claim

for combining Rao with Oestvall. *Id.* at 12 ("Given *Oestvall's focus on battery conservation*, Rao-Oestvall would have therefore enabled prioritization in a manner that *conserves battery power*"). Nothing in Rao or Oestvall teaches or suggests applying policies based on whether the device is connected to a WWAN.

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limitations [1.8(b)] & [1.8(c)]. For example, an indication that Internet data “is available” is different from an indication that Internet data “is available *via the WWAN modem*.” A notification that the device has been connected to a WLAN would meet the former but not the latter. They are also different questions. For example, asking whether Internet access is available in general (via any network type) is different from asking whether a specific type of Internet access (via a WWAN) is available.

Indeed, the Petition’s entire approach to claim 1 of the ’976 Patent is to read most of the WWAN limitations out of the claim. For claim [1.7], it relies on a system that does not apply policies “exclusively” in WWAN mode and operates the same way when communicating “over either a WWAN or WLAN.” *Id.* at 23. And for claim [1.8], the Petition makes no distinction between “Internet data service” and “Internet data service via the WWAN modem.” As a result, the Petition’s approach is to ignore the WWAN limitations and read the claim as if they did not exist:

Identifier	Claim Language (As Modified by the Petition)
[1.7]	for a time period when data for Internet service activities is communicated <i>through a WWAN modem connection to the at least one WWAN</i> , apply a first differential traffic control policy to Internet service activity on behalf of the first end-user application . . .

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[1.8]	indicate to the first end-user application . . . a first network access condition that indicates the unavailability to the first end-user application . . . of Internet data service that is available via the WWAN modem , and a second network access condition that indicates the availability to the first end-user application . . . of Internet data service that is available via the WWAN modem .
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Petitioner's approach is fundamentally improper. It cannot meet its burden to prove obviousness reading out claim requirements. Accordingly, the Petition does not and cannot show that Rao-Oestvall renders obvious claim [1.8].

3. For claim [1.8], Petitioner's expert declaration repeats the Petition verbatim and is entitled to no weight.

Although the Petition cites the declaration of its expert Dr. Butler for claim [1.8], the declaration fails to provide any additional argument, analysis, or evidence. It merely repeats the same ten paragraphs as the Petition, nearly verbatim. *Compare* Pet. at 26-32 *with* Ex. 1003 ¶¶84-93. Thus, the cited opinions for claim [1.8] are deficient and fail for the same reasons. Dr. Butler's opinions are also unsupported and conclusory, and entitled to no weight. *See Xerox* at 15 (denying institution and giving "little weight" to "cited declaration testimony [that] is conclusory and unsupported" and "adds little to the conclusory assertion for which it is offered to support"); *Smartmatic* at 34 (giving no weight to an expert declaration that "merely parrots the language in the Petition").

C. The Deficiencies for Claims [1.7] and [1.8] Apply to All Grounds and All Challenged Claims

As discussed above, Petitioner fails to show that Rao-Oestvall renders obvious claim limitations [1.7] and [1.8] for three independent reasons:

4. Rao-Oestvall does not apply a first differential traffic control policy to *disallow* Internet service activity by the first application, as required by claim [1.7].
5. Rao-Oestvall does not send indications to the first application regarding network access conditions based on the applied first differential traffic policy, as required by claim [1.8].
6. Rao-Oestvall does not send indications regarding the availability or unavailability of Internet data service that is *available via the WWAN modem*, as required by claim [1.8].

For any of these reasons, Petitioner fails to prove that claim 1 is unpatentable.

The same deficiencies apply to all grounds and all challenged claims. For Ground 1A, the challenged claims are claims 1-4, 8-10, 13, 14, 16, 19, 20, 25, 27, and 28. Pet. at 1-2. Claim 1 is the only independent claim, and the other challenged claims all depend from claim 1. Likewise, Grounds 1B & 1C challenge other dependent claims (claims 5-7, 11-12, 15, 17-18, 21-24, 26, 29) based on Montemurro or Araujo. *Id.* These dependent claims depend from claim 1 as well.

The Petition's theories for dependent claims rely only on its theories for independent claim 1 to allege that the elements of claim 1 are met and contain no

additional theories for claim 1. Accordingly, the Petition fails to prove that any challenged claim is unpatentable, and institution should be denied.

VII. THE BOARD SHOULD DENY INSTITUTION UNDER § 325(d)

The Board should exercise its discretion under 35 U.S.C. § 325(d) to deny institution. The Board “may take into account whether, and reject the Petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d). As the Board explained in *Advanced Bionics*,

[U]nder § 325(d), the Board uses the following two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, whether the Petition has demonstrated that the Office erred in a manner material to the patentability of the challenged claims. If a condition in the first part of the framework is satisfied and the Petition fails to make a showing of material error, the Director generally will exercise discretion not to institute inter partes review.

Advanced Bionics, LLC v. Med-El Elektromedizinische Gerate GmbH, IPR2019-01469, Paper 6 at 8-9 (PTAB Feb. 13, 2020) (precedential). “If reasonable minds can disagree regarding the purported treatment of the art or arguments, it cannot be said that the Office erred in a manner material to patentability. At bottom, this

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framework reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Id.* at 9.

“In evaluating whether to exercise our discretion when the same or substantially the same prior art or arguments previously were presented to the Office under section 325(d), we have weighed some common *non-exclusive* factors:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relied on the prior art or Patent Owner distinguishes the prior art;
- (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the petition warrant reconsideration of the prior art or arguments.”

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper 8 at 17-18 (§ III.C.5) (PTAB Dec. 15, 2017) (“*Becton, Dickinson*”) (informative, precedential as to § III.C.5). “If, after review of factors (a), (b), and (d), it is determined that the same or substantially the same art or arguments previously were

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presented to the Office, then factors (c), (e), and (f) relate to whether the petitioner has demonstrated a material error by the Office.” *Advanced Bionics* at 10.

A. *Advanced Bionics* Step 1 (*Becton, Dickinson* Factors (a), (b), and (d)): The Same or Substantially the Same Prior Art Was Previously Presented to the USPTO

The Petition contains three alleged grounds of invalidity: (1) an obviousness ground based on Rao and Oestvall (Ground 1A,⁶ for claims 1-4, 8-10, 13, 14, 16, and 19); (2) an obviousness ground based on Rao and Oestvall in further combination with Montemurro (Ground 1B, for dependent claims 5-7, 11, 17, 18, 23, 24, 26, and 29); and (3) an obviousness ground based on Rao and Oestvall in further combination with Araujo (Ground 1C, for dependent claims 12, 15, 21, and 22). *See* Pet. at 1-2. As claim 1 is the sole independent claim of the '976 Patent (*see* Ex. 1001 at 105:50-108:47), only Ground 1A challenges any independent claims. And the other two grounds (Grounds 1B and 1C) simply rely on the same art as

⁶ As noted above, the Petition claims that Araujo provides “additional support for the features of claim 1” (Pet. at 1 n.1), but does not provide analysis of how Araujo does so and provides no analysis of how Araujo would be combined with Rao and/or Oestvall in the context of claim 1, the sole independent claim. The Petition therefore fails to mount a cognizable theory for claim 1 that involves Araujo. This portion of the response, concerning Section 325(d), therefore does not address Araujo.

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Ground 1A (Rao and Oestvall), with additional secondary references only relied upon for certain elements of dependent claims. *See* Pet. at 46-74. As explained below, both Rao and Oestvall (the only references the Petition relies upon for the sole independent claim of the '976 Patent) are substantially the same as art considered during prosecution.

1. Rao is cumulative of and substantially the same as a nearly identical family member considered by the Examiner during prosecution.

Rao is the Petition's lead reference. The Petition admits that a "relative[]" of Rao (PCT application WO 2006/012610A2 ('Rao-2')) was cited on the face of the '976 Patent." Pet. at 74; *see also* Ex. 1001 at 9 (listing Rao-2 in the "References Cited" section). A comparison of Rao (Ex. 1005) and Rao-2 (Ex. 2002) reveals that aside from formatting differences and some additional introductory material in Rao-2, there is no difference between these two family members—Rao-2 contains all of the same disclosures as Rao plus a small amount of additional content. *See* Ex. 2003. Rao and Rao-2 also share the same set of patent figures. *Compare* Ex. 1005 at Figs. 1-6 *with* Ex. 2002 at Figs. 1-6.

The Petition does not even mention, let alone explain, why any alleged differences between Rao and Rao-2 are relevant here. Rather, the Petition alleges that "there is no evidence that the Office substantively considered" Rao-2. Pet. at 74. But the prosecution history makes clear that the Examiner considered Rao-2 because

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the Examiner placed a copy of the IDS containing this reference in the file history, with an electronic signature next to the statement “All references considered except where lined through,” with no line through Rao-2. *See* Ex. 1002 at 21. A copy of Rao-2 is also included in the file history. *See id.* at 189-306.

To the extent Petitioner intends to argue that citation of art on an IDS is insufficient to support denial under Section 325(d), the Petition cites no authority for this argument (*see* Pet. at 74-75), and indeed, this argument is contrary to the precedential *Advanced Bionics* decision and its progeny: “*Previously presented art includes art* made of record by the examiner, and art provided to the Office by the applicant, such as *on an Information Disclosure Statement (IDS)*, in the prosecution history of the challenged patent.” *Advanced Bionics* at 8; *see also, e.g., Biocon Pharma Ltd. v. Novartis Pharms. Corp.*, IPR2020-01263, Paper 12 at 9 (PTAB Feb. 16, 2021) (“[W]e accept that the Examiner considered [the prior art reference] because it is listed on the IDS and the Examiner signed the IDS with the statement ‘all references considered except where lined through.’”); *Vital Connect, Inc. v. Bardy Diagnostics, Inc.*, IPR2023-00381, Paper 7 at 14 (PTAB July 11, 2023) (Because “Oster was listed in an information disclosure statement (IDS),” “appears on the face of the [challenged patent],” and “[t]he examiner also certified that he considered all references listed in the IDS ‘except where lined through,’ and Oster is not lined through,” “[t]here can be no dispute that Oster was before the Office.”),

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Director review denied, Paper 9 (PTAB Oct. 3, 2023); *see also id.* at 15-16 (holding the same for a family member of a reference asserted in the petition, and finding the reference asserted in the petition cumulative of the family member); *Eyenovia, Inc. v. Sydnexus*, IPR2022-00963, Paper 7 at 10-11 (PTAB Nov. 8, 2022) (“*Eyenovia*”) (Because “references appear in the references cited section of the [challenged] patent and were identified in Information Disclosure Statements (‘IDSs’) during prosecution[,] . . . these references were ‘previously presented’ for the purposes of assessing the application of discretion under 35 U.S.C. § 325(d).”); *BMW of N. Am., LLC v. Stragent, LLC*, IPR2021-00419, Paper 14 at 12-13 (PTAB July 19, 2021) (exercising discretion to deny institution under § 325(d) in part because relied-upon prior art was cited on an IDS), *reh’g denied*, Paper 21 at 5 (PTAB Mar. 21, 2022); *Vovomart (HK) Enters. Co. v. Office Kick, Inc.*, PGR2022-00048, Paper 14 at 9 (PTAB Jan. 12, 2013) (same), *reh’g denied*, Paper 16 (PTAB Mar. 9, 2023); *Microsoft Corp. v. AlmondNet, Inc.*, IPR2022-01319, Paper 9 at 8, 10 (PTAB Jan. 30, 2023) (“*AlmondNet*”) (same), *POP request denied*, Paper 13 (PTAB Mar. 24, 2023), *reh’g denied*, Paper 14 (PTAB Apr. 23, 2023).

And to the extent that Petitioner intends to argue that, to support denial under Section 325(d), the same or substantially the same art needs to be part of a prior art rejection in an Office Action during prosecution, the Petition likewise cites no authority for this argument. *See* Pet. at 74-75. And the Board has held to the contrary:

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“[T]here is no requirement that Examiner needs to rely on a reference in a rejection during prosecution in order for the reference to be ‘considered’ during prosecution.” *Ivantis, Inc. v. Sight Sciences, Inc.*, IPR2022-01530, Paper 14 at 17 (PTAB Mar. 27, 2023); *see also, e.g., Palo Alto Networks, Inc. v. Centripetal Networks, Inc.*, IPR2021-01156, Paper 10 at 13-14 (PTAB Jan. 24, 2022) (rejecting argument that “the first part of the *Advanced Bionics* framework is not met because [the prior art was] not substantively discussed or applied in a rejection during prosecution” because “[u]nder the Board’s precedent in *Advanced Bionics*, however, ‘[p]reviously presented art includes . . . art provided to the Office by an applicant, such as on an [IDS]’”) (quoting *Advanced Bionics* at 7-8) (alterations in original), *POP request denied*, Paper 13 (PTAB Mar. 16, 2022), *reh’g denied*, Paper 14 (PTAB May 5, 2022).

In sum, because Rao-2 was previously presented to the Office, and Rao is cumulative of Rao-2, substantially the same art as Rao has already been presented to the Office.

2. The Petition’s reliance on Oestvall in Ground 1A for limitations [1.7] and [1.8] does not change the Section 325(d) calculus.

Oestvall is the only reference other than Rao that the Petition relies upon in Ground 1A, the Petition’s only challenge to the sole independent claim of the ’976 Patent (claim 1). For claim elements [1.1], [1.2], [1.3], [1.4], [1.5], and [1.6] the

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Petition relies only on disclosures from Rao, with Oestvall only relied upon in the analysis for claim elements [1.7] and [1.8]. Pet. at 16-32. This portion of the preliminary response therefore only addresses the cumulative nature of Oestvall disclosures with respect to claim elements [1.7] and [1.8]. As detailed below, each of the cited disclosures from Oestvall is substantially the same as cited disclosures from Rao, or as disclosures from the Venkatraman or Noonan references that the Examiner discussed in the Notice of Allowance. *See* Ex. 1002 at 346-47; *see also* *Nokia of Am. Corp. v. Soto*, IPR2023-00680, Paper 10 at 21-23, 26-28 (PTAB Nov. 3, 2023) (denying institution of review where the petitioner relied on different art than was cited during prosecution, but applied the art in the “same manner” as other art before the Office).

- a. **Each of the Oestvall disclosures on which the Petition relies for claim element [1.7] is cumulative of and substantially similar to those it relies on from Rao, or as disclosures from Venkatraman or Noonan.**

The only portion of claim element [1.7] on which the Petition purports to rely on Oestvall is “[the] Internet service activity on behalf of the first end-user application is disallowed when the one or more processors classify the first end-user application as not interacting in the device display foreground with the user.” The Petition alleges that “Oestvall’s techniques of *preventing an untrusted application* running in the background *from ‘being given any services or consuming any*

resources” meets this limitation. Pet. at 25 (quoting Ex. 1006 at Abstract). The Petition further alleges:

[T]his would have been accomplished using an Oestvall-like scheduler ... based on a classification of application 338 and a determination by an Oestvall-like window server component that determines if the application is running in the foreground or background. Thus, in a scenario where application 338 is an untrusted application presenting in the background, the Oestvall-like scheduler would “*prevent[] the [application 338] from running,*” e.g., “*operate so as to never allocate any services or resources to the [application 338].*”

Id. (quoting Ex. 1006 ¶[0023]) (internal citation omitted, alterations in original). These disclosures from Oestvall are cumulative of disclosures in Venkatraman (U.S. Patent Application Publication No. 2008/0034418, Ex. 2006), which the Examiner indicated in his Notice of Allowance was one of three pieces of “closest prior art.” *See* Ex. 1002 at 346-47. For example, Venkatraman discloses:

provid[ing] a level of access ... to a resource by an application on a client via a virtual private network connection. A decision to allow or deny a level of access is based on identification of the application. . . . The appliance determines, *using the authorization policy and the identity of the application, to either allow or deny access by the application to the resource.*

Ex. 2006 ¶[0007]; *see id.* ¶[0008] (“[A]n authorization policy specifies a name of the application and an authorization to either access or deny a level of access.”); *id.*

¶[0127] (“[T]he policy identifies *access is either granted or denied by the identifier of the application.*”); *id.* ¶[0129] (“[T]he appliance 200 based on the *application-based policy denies any access by the application*”); *see generally id.* ¶¶[0119]-[0130], Fig. 6 (further details of the above-described embodiment); *see also generally id.* ¶¶[0005], [0006], [0108]-[0118], Fig. 5 (describing another embodiment in which intercepted requests are not transmitted if they do not originate from an authorized application). In other words, both Oestvall and Venkatraman disclose permitting an authorized or trusted application to access a given resource, and blocking such access for an unauthorized or untrusted application.

Although Venkatraman does not appear to disclose something akin to an “Oestvall-like window server component that *determines if the application is running in the foreground or background*” (*see* Pet. at 25), the Petition admits that its lead reference Rao discloses that its “remote access client 120 ... ‘*determine[s] whether the application 338a-338n associated with [a] network packet is running in the foreground or the background*’ (*id.* at 21 (quoting Ex. 1005 ¶[0188] (alterations in original)), and that Rao’s “policies ‘define prioritization based on whether an application is running in the foreground or the background of the client’” (*id.* at 20 (quoting Ex. 1005 ¶[0182])); *see also id.* at 8, 21-24).

In addition, in its analysis of claim limitation [1.7], the Petition points to the following unremarkable disclosure in Oestvall as allegedly supporting its

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obviousness arguments: “battery conservation in battery operated computing devices is very important, particularly in devices such as smartphones that consume high power levels by virtue of connecting to always-on GPRS or 3G cellular networks.” *Id.* at 22 (quoting Ex. 1006 ¶[0004]). But Noonan (U.S. Patent Application Publication No. 2006/0136882, Ex. 2007), also one of the “closest prior art” that the Examiner discussed in the Notice of Allowance (Ex. 1002 at 346-47), similarly discusses how having too many applications running in the background on a mobile device can result in “losing battery life more quickly than is desired or necessary.” Ex. 2007 ¶[0009]; *see id.* ¶¶[0004]-[0006].

b. Each of the Oestvall disclosures on which the Petition relies for claim element [1.8] is cumulative of and substantially similar to those from Venkatraman or Noonan.

The Petition subdivides claim element [1.8] into three parts ([1.8(a)], [1.8(b)], and [1.8(c)]), but as explained below, relies on the same disclosures from Oestvall for each subpart. Each of these disclosures is cumulative of and substantially the same as disclosures from Venkatraman or Noonan. And as noted above, the Examiner stated in his Notice of Allowance that three “closest prior art” references, including Venkatraman and Noonan, failed to disclose all parts of this limitation. Ex. 1002 at 346-47.

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Beginning with claim sub-element [1.8(a)]⁷ (“indicate to the first end-user application, via an application programming interface (API), one or more network access conditions based on the applied first differential traffic control policy”), the Petition alleges that “in Oestvall, an applied *policy specifies a condition that ‘prevents [an] untrusted application 4 from running,’ including accessing device network resources.*” Pet. at 26 (quoting Ex. 1006 ¶[0023]) (alteration in original). These disclosures from Oestvall are again cumulative of disclosures in Venkatraman. For example, as noted above, Venkatraman discloses:

provid[ing] a level of access ... to a resource by an application on a client via a virtual private network connection. A decision to allow or deny a level of access is based on identification of the application. ... The appliance determines, *using the authorization policy and the identity of the application, to either allow or deny access by the application to the resource.*

Ex. 2006 ¶[0007]; *see also id.* ¶¶[0008], [0127]; *see generally id.* ¶¶[0119]-[0130], Fig. 6; *see also generally id.* ¶¶[0005], [0006], [0108]-[0118], Fig. 5. In other words,

⁷ The Petition refers to “application classification (from Oestvall)” in discussing claim element [1.8(a)]. Pet. at 26 (citing Ex. 1006 ¶¶[0002], [0023]). This is a reference to the same “application classification” disclosures as discussed in relation to claim element [1.7], which as detailed above are cumulative of and substantially the same as disclosures from Venkatraman and Rao.

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and as also discussed above, both Oestvall and Venkatraman disclose permitting an authorized or trusted application to access a given resource, and blocking such access for an unauthorized or untrusted application.

The Petition additionally alleges that Oestvall “contemplates embodiments in which a policy decision is communicated to an application, since the *[trusted] application ‘maybe [sic] requested’ (but not prevented) to stop running if in the background.*” Pet. at 27 (citing Ex. 1006 ¶¶[0015], [0023]) (bolding and underlining in original). This Oestvall disclosure is substantially the same as disclosures from Noonan. For example, Noonan discloses monitoring the resource usage of background applications, and once the usage of a given application “has exceeded a certain threshold and/or has been operating for an excessive period of time,” “*at the user’s option, the user can disable the [background] midlet [application] if desired.*” Ex. 2007 ¶¶[0017], [0025]; *see also* Ex. 1002 at 347 (the Examiner explaining that “Noonan ... discloses a system for monitoring background application/‘midlets’ of a mobile device and notifying the user of utilized resources”). In other words, both Oestvall and Noonan disclose *optionally* stopping certain applications from running in the background.

The Petition further alleges that one way to “provide indications to applications relating to policy evaluation” is “using permissions to regulate *API calls (granting, denying) made by applications in accessing a network,*” as

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allegedly disclosed in the Dive-Reclus reference (Ex. 1026), which the Petition states that “Oestvall incorporates by reference.” Pet. at 27-28 (citing Ex. 1006 ¶[0020]; Ex. 1026 at 16:23-17:28, 20); *see also id.* at 28-29 (alleging that “Dive-Reclus ... teaches permissions regulating network access by a third-party application that uses an API call”). Setting aside whether Oestvall effectively incorporates Dive-Reclus by reference, even assuming that it does, these cited API-related disclosures from Dive-Reclus are cumulative of disclosures from Venkatraman. *See, e.g.,* Ex. 2006 ¶[0122] (“[T]he client agent 120 *determines via an application programming interface (API)* the process id (PID) and/or *the name of the application* associated with the connection or context from which the request was intercepted.”). Thus, both Dive-Reclus and Venkatraman disclose using API calls to communicate with applications that may be granted or denied access to a resource.

Finally, for claim sub-elements [1.8(b)] and [1.8(c)], the Petition relies on the same disclosures from Oestvall (and Dive-Reclus) as it does for claim element [1.8(a)]. *See* Pet. at 30-32 (for both claim sub-elements [1.8(b)] and [1.8(c)], referring again to Oestvall’s application classification, “Oestvall’s non-limiting reference to an application ‘being given any services or consuming any resources,’” and “permissions regulating network access by a third-party application that uses an API call”) (citing Ex. 1006 ¶¶[0002], [0020], [0023]; Ex. 1026 at 16:23-17:28, 20) (emphases removed). As discussed above, these disclosures from Oestvall (and

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Dive-Reclus) are cumulative of and substantially the same as disclosures from Venkatraman or Noonan.

3. The Petition's reliance on art for certain limitations of certain dependent claims does not counsel against denial of institution.

The Board has held that “Petitioners’ citation of references not considered by Examiner solely for ‘additional subject matter of certain dependent claims[] is insufficient to persuade us that exercising our discretion under 35 U.S.C. § 325(d) is inappropriate.”” *See, e.g., Miltenyi Biomed. GmbH v. Trs. of Univ. of Pa.*, IPR2022-00853, Paper 11 at 45 (PTAB Oct. 11, 2022) (“*Miltenyi*”) (quoting *Kayak Software Corp. v. Int’l Bus. Machs. Corp.*, CBM2016-00075, Paper 16 at 10 (PTAB Dec. 15, 2016) (informative)) (alteration in original), *reh’g denied*, Paper 18 (PTAB Feb. 17, 2023). Therefore, it is of no event whether or not the Petition relies on non-cumulative disclosures from alleged prior art for its analysis of dependent claims for the simple reason that if the independent claim is valid then so are the dependent claims. *See AlmondNet* at 8, 11 (denying institution under Section 325(d) even though the Narin reference, which was not before the Examiner, was applied by the Petition for certain dependent claims, and noting that patent owner argued that “whether or not Narin discloses certain limitations of [a] dependent claim ... would have made no difference to the Examiner’s analysis, and it is therefore unnecessary to evaluate the questions of what Narin discloses or whether Narin was of record”).

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It is therefore unnecessary to evaluate the questions of what the cited prior art discloses in the context of these dependent claims or whether these references were of record. *See, e.g., Miltenyi* at 45; *AlmondNet* at 8, 11.

Nevertheless, despite “ha[ving] the burden of proof to establish that it is entitled to the relief requested,” the Petition does not even mention the additional references it relies on for certain dependent claim limitations in Grounds 1B and 1C (Montemurro or Araujo) in its Step 1 analysis, let alone present any evidence or argument addressing whether these references were before the Examiner, or whether these references are not otherwise substantially the same as prior art considered by the Examiner during prosecution. *See* Pet. at 74-75; *EcoFasten Solar, LLC v. Unirac, Inc.*, IPR2021-01379, Paper 11 at 38-39 (PTAB Feb. 8, 2022). Indeed, Montemurro’s disclosure was in fact considered during prosecution by the Examiner. The patent that issued from the Montemurro application on which the Petition relies is listed on an IDS in the file history, with an electronic signature next to the statement “All references considered except where lined through,” with no line through Montemurro. Ex. 1002 at 16 (listing U.S. Patent No. 8,825,109 to Montemurro et al. (“Montemurro Patent”)); *see* Ex. 1001 at 6 (listing the Montemurro Patent in the “References Cited” section); *see, e.g., Advanced Bionics* at 7-8. As would be expected, there are very few differences between the disclosures of the Montemurro Patent (Ex. 2004) and the published application from which that

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patent issued (Ex. 1007), with differences limited to formatting and an additional parenthetical in the issued patent explaining that “store 200” is “an example of a computer readable storage medium.” *See* Ex. 2005. Montemurro’s disclosure was therefore considered by the Examiner during prosecution.

* * *

Because the Petition relies only on references for the sole independent claim that have substantially the same relevant disclosures as references presented to the Office and considered by the Examiner, the first part of the *Advanced Bionics* framework is satisfied. *See Advanced Bionics* at 20 (“As discussed above, we determine that the ‘same or substantially the same prior art’ was previously presented to the Office. Accordingly, the first condition of the first part of the framework is satisfied, and we need not reach whether the ‘same or substantially the same arguments’ previously were presented to the Office.”).

B. *Advanced Bionics* Step 2 (*Becton, Dickinson* Factors (c), (e), and (f)): Petitioner Has Made No Showing of Material Examiner Error

Although the Petition admits that a family member of Rao was before the Examiner during prosecution and doesn’t identify any material differences between the family member and Rao, the Petition fails to make any non-conclusory allegations concerning Examiner material error. *See* Pet. at 74-75.

The Petition simply alleges in conclusory fashion that “the Examiner clearly

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did not appreciate Rao's disclosures and how those references [sic] in combination with other prior art references not previously before the Office (Montemurro, Oestvall and Araujo) render the Challenged Claims obvious." *Id.* at 75. As for Rao and Oestvall, the only references the Petition relies upon for the sole independent claim of the '976 Patent, "[a]lthough there was no rejection issued over the particular references cited in the Petition, these references were either before the Examiner ... or are cumulative of references ... before the Examiner. There is no evidence that suggests the Examiner overlooked the most pertinent teachings in the art presented during prosecution." *Eyenovia* at 19 (denying institution in part because the petition failed to demonstrate that the Examiner materially erred); *see also Gator Bio, Inc. v. Sartorius Bioanalytical Instruments, Inc.*, IPR2023-00215, Paper 19 at 21 (PTAB June 20, 2023). As for the other two references mentioned here, the Petition only relies upon those references for certain aspects of dependent claims, which does not impact the Section 325(d) analysis. And as explained above, and contrary to the Petition's representation here, the disclosure of one of these references (Montemurro) was in considered during prosecution.

Finally, although not necessary for the Board to exercise its discretion and deny institution under Section 325(d), the Examiner did not err. As explained in Section V above, the Petition fails to show that Rao or Oestvall meet claims [1.7] and [1.8] for three dispositive reasons. The weak merits of the Petition, which relies

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on the same or substantially the same art as was before the Examiner, is a further indication of lack of Examiner error, let alone material error.

* * *

Because the Petition presents only the same and substantially the same prior art as previously presented during prosecution, and because the Petition fails to meet its burden of showing of material error by the USPTO, Patent Owner respectfully requests that the Board exercise its discretion and deny institution under 35 U.S.C. § 325(d). *See Advanced Bionics* at 9 (“If a condition in the first part of the framework is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute *inter partes* review.”).

VIII. CONCLUSION

Patent Owner respectfully requests that the Board deny institution for either or both of two independent reasons. First, each of the Petition’s grounds fails on the merits. Second, the Board should deny institution because the same or substantially the same prior art was presented to the USPTO during prosecution, and the Petition has failed to show any material error by the Examiner.

Date: December 22, 2023

Respectfully submitted,

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CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), I certify that there are 12,493 words in the paper excluding the portions exempted under 37 C.F.R. §42.24(a)(1).

Date: December 22, 2023

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e)(1), I certify that the above document was served on December 22, 2023, by filing this document through the Patent Trial and Appeal Case Tracking System as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioner:

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